Clearfield® Production System for Lentils

BASF We create chemistry

Stewardship Guidelines for Clearfield Lentils.

BASF is committed to the long-term sustainability of the **Clearfield**® Production System for lentils. The stewardship initiatives co-developed by BASF and university researchers are designed as guidelines for **Clearfield** lentil producers in an effort to maximize the value realized by producers as well as preserve this herbicide-tolerance technology for years to come. These management practices were designed to prevent and/or delay herbicide resistance development in weed populations in Canada.

The key recommendations for proper stewardship of **Clearfield** lentils are as follows:

Seed Practices

- Growers may utilize either certified seed from a seed dealer or farm-saved seed.
- When using farm-saved seed, growers are encouraged to submit a 1 kg sample of that seed for a "**Clearfield**-Confirm® test" at an independent seed laboratory facility approved by BASF. Seed can be considered herbicide tolerant if it meets or exceeds the current standard for herbicide tolerance set by BASF under the **Clearfield**-Confirm test protocol.
    - The use of certified seed and farm-saved seed that has passed the **Clearfield**-Confirm test ensures an acceptable degree of herbicide tolerance trait expression in the **Clearfield** variety purchased and planted. Seed that is not certified or has not passed a **Clearfield**-Confirm test may naturally vary in its degree herbicide tolerance trait expression.
    - For growers who opt to participate in the **Clearfield** Seed Quality Offer Program, BASF will cover the cost of the **Clearfield**-Confirm test.
    - Testing for seed quality, in general, also reduces the risk of introducing weed and seed-borne diseases.
- Approved **Clearfield**-Confirm test seed labs:

  20/20 Seed Labs Inc. (1-877-420-2099) 507-11th Avenue, Nisku, AB T9E 7N5

  20/20 Seed Labs Inc. (1-866-540-7333) 3487 Pembina Hwy, Winnipeg, MB R3V 1A4

  SGS Canada Inc. (1-800-952-5407) Unit 310, 280 Portage Close, Sherwood Park, AB T8H 2R6

  Discovery Seed Labs (306-249-4484) 450 Melville Street, Saskatoon, SK S7J 4M2

  Lendon Seed Lab (306-585-7333) 147 Hodsman Road, Regina, SK S4N 5W5

  Prairie Diagnostic Seed Lab (306-842-7375) 1105 Railway Avenue, Weyburn, SK S4H 3H5

  Seed Check Technologies Inc. (780-980-8324) Unit 101, 5906-50 Street, Leduc, AB T9E 0R6

  Seed Solutions Seed Labs (306-741-9309) Box 220, Waldeck, SK S0H 4J0

Herbicide Practices

- If a grower is using an ALS/ AHAS-inhibiting (Group 2) herbicide on **Clearfield** lentil seed, it must be registered and labeled for use on **Clearfield** lentils.
- Apply herbicides at the recommended label rates using no less than the recommended minimum carrier water volume.
- Use herbicides with different modes of action.

- Use no more than two Group 2 herbicides (such as Solo® or Odyssey®) in four years. One should not solely rely on ALS/AHAS-inhibiting (Group 2) herbicides. Herbicide use should be based on an integrated weed management program.
- Do not use two Group 2 products in the same field in consecutive years or in the same year.
- Where applicable, use sequential or tank-mix partner herbicides with alternate and/or multiple modes of action.

Agronomic Practices

- Utilize crop rotation best practices.
  - Lentil is recommended in the rotation once out of four years. This will allow for the use of herbicides with alternate modes of action. In addition, the crop rotation recommendations are based on moisture limitations and cultural practices for optimal disease management in lentil production.
  - **Clearfield** lentil is not recommended in rotation with any other **Clearfield** crop, such as but not limited to, wheat, canola and sunflowers. However, **Clearfield** lentils may be used in rotation with other **Clearfield** crops as long as a non-ALS/AHAS herbicide was used on one of the **Clearfield** crops in the rotation.
- Properly manage weeds in crop-fallow rotation.
  - In a fallow year, growers should control weeds without using Group 2 ALS/AHAS herbicides when **Clearfield** crops are grown in the rotation.
- Properly control volunteer **Clearfield** lentil.
  - Volunteer **Clearfield** lentil should be controlled with non-ALS/AHAS herbicides, ex., 2,4-D, MCPA, etc.
  - In general, volunteer lentils are poor agronomic competitors relative to rotational crops, i.e., wheat, due to 1) low seed dormancy and survivability as weeds to be present in succeeding crop, and 2) numerous herbicide control options.
- ALWAYS follow an integrated weed management program that includes herbicides, cultural practices and crop rotation in an effort to manage weed populations and minimize weed seed development.
- ALWAYS control volunteer plants in the season following a **Clearfield** lentil crop.
- There are multiple weed species that exhibit resistance to ALS/AHAS-inhibiting (Group 2) herbicides in Western Canada. Control of Group 2 resistant populations should be conducted in the crops prior to growing **Clearfield** lentils to minimize herbicide-resistant populations.
- Use practices that minimize the likelihood of out-crossing to similar crops or related weeds.

Product Support

- BASF does not warrant the crop safety or performance of any non-BASF branded herbicides.
- BASF does not warrant the crop safety or performance of any BASF branded herbicide applied to **Clearfield** lentil farm-saved seed that has not passed a **Clearfield**-Confirm test.
- Proof-of-purchase records for **Clearfield** lentil seed and Solo or Odyssey herbicides must be provided to BASF prior to servicing any crop claim. Use of Solo or Odyssey herbicides should be done in accordance with the product label, including stated label rate and timing.

Always read and follow label directions.